International Standard 7133

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Earth-moving machinery — Tractor-scrapers — Terminology and commercial specifications

Engins de terrassement — Décapeuses — Terminologie et spécifications commerciales

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 7133 was prepared by Technical Committee ISO/TC 127, *Earth-moving machinery*.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

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Contents

Earth-moving machinery — Tractor-scrapers — Terminology and commercial specifications

1 Scope

This International Standard establishes terminology and the content of commercial literature specifications for self-propelled tractor-scrapers, and their equipment.

2 Field of application

This International Standard applies to tractor-scrapers as defined in ISO 6165.

3 References

ISO 1585, *Road vehicles — Engine test code — Net power.*

ISO 3450, *Off-highway earth-moving machinery — Minimum performance criteria for brake systems.*

ISO 5010, *Earth-moving machinery — Rubber-tyred machines — Steering systems.*

ISO 6014, *Earth-moving machinery — Determination of ground speed.*

ISO 6165, *Earth-moving machinery — Basic types — Vocabulary.*

ISO 6484, *Earth-moving machinery — Elevating scrapers — Volumetric rating.*

ISO 6485, *Earth-moving machinery — Tractor-scraper volumetric rating.*

ISO 6746/1, *Earth-moving machinery — Definitions of dimensions and symbols — Part 1 : Base machine.*

ISO 7457, *Earth-moving machinery — Measurement of turning dimensions of wheeled machines.*

4 General definitions

4.1 tractor-scraper : A self-propelled wheeled machine, having an open bowl with a cutting edge positioned between the axles, which cuts, loads, transports, discharges and spreads material through a forward motion of the machine.

Loading through the forward motion of the machine can be assisted by a powered mechanism (elevator) fixed to the scraper bowl (see ISO 6165).

4.2 base machine : A tractor-scraper without equipment, as described by the manufacturer specifications. The machine should be provided with the necessary mountings to secure the attachment as shown in clause 6.

4.3 equipment: A set of components mounted onto the base machine to fulfil the primary design function.

4.4 attachment: An optional assembly of components that can be mounted onto the base machine for a specific use.

4.5 component: Part or an assembly of parts of a base machine, equipment or an attachment.

5 Base machine

5.1 Types of tractor-scrapers

5.1.1 Method of loading

5.1.1.1 Open bowl loading (figure 1)

5.1.1.2 Elevated loading (figure 2)

5.1.2 Steering system

5.1.2.1 Front wheel steer (figure 3)

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5.1.3 Number of axles

5.1.3.1 Two axles (figure 5)

5.1.3.2 Three axles (figure 6)

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5.1.4.1 One engine (figure 7)

5.1.4.2 Two engines (figure 8)

5.1.5 Drive system

5.1.5.1 Front wheel drive (figure 9)

5.1.5.2 All wheel drive (figure 10)

5.1.5.3 Centre axle drive (figure 11)

Method of loading (see 5.1.1)

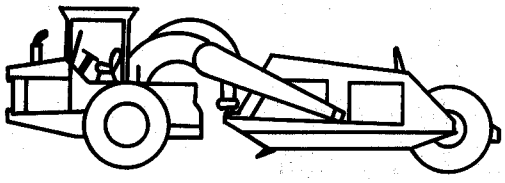


Figure 1 — Open bowl loading

Open bowl scrapers require the application of tractive effort to load material into the bowl. This tractive effort may be developed by the tractor-scraper itself, by another tractor-scraper temporarily or permanently connected, or by a pushing tractor.

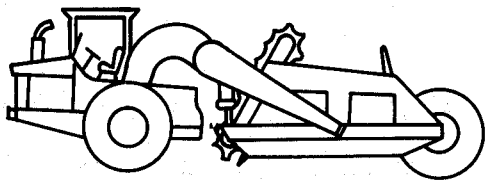


Figure 2 — Elevated loading

Elevating scrapers have a powered mechanism fixed to the scraper bowl to assist in loading material.

Steering system (see 5.1.2)

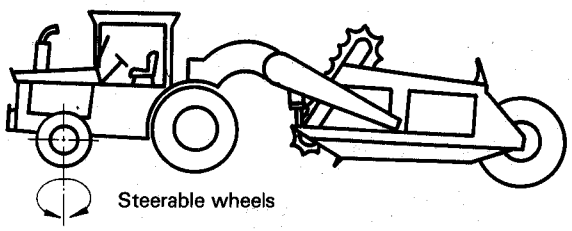


Figure 3 — Front wheel steer

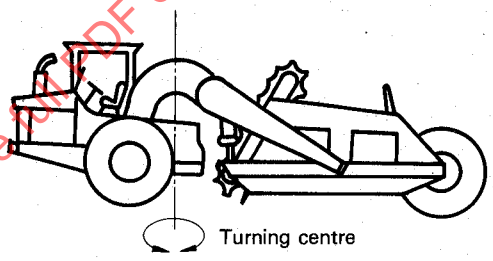


Figure 4 — Articulated steer

Number of axles (see 5.1.3)

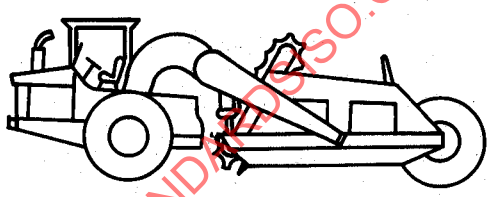


Figure 5 — Two axles

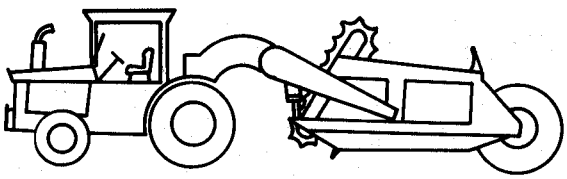


Figure 6 — Three axles

Number of engines (see 5.1.4)

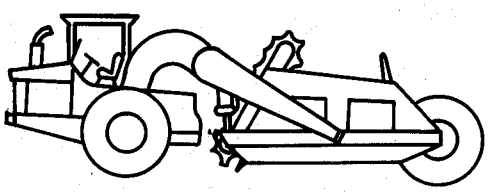


Figure 7 — One engine

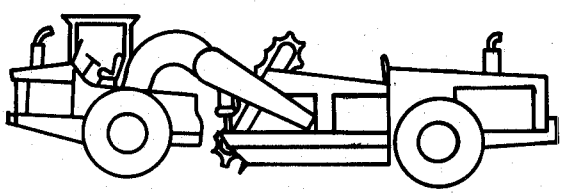


Figure 8 — Two engines

Drive system (see 5.1.5)

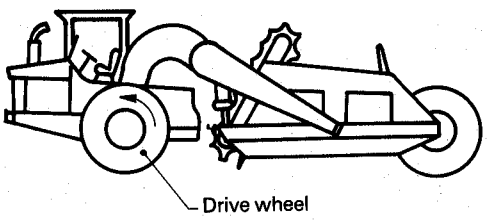


Figure 9 — Front wheel drive

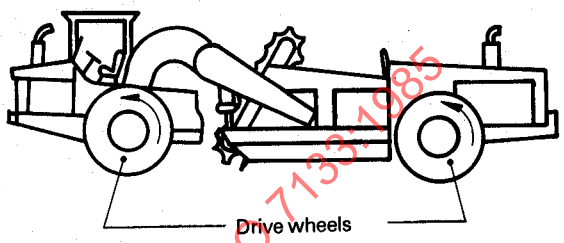


Figure 10 — All wheel drive

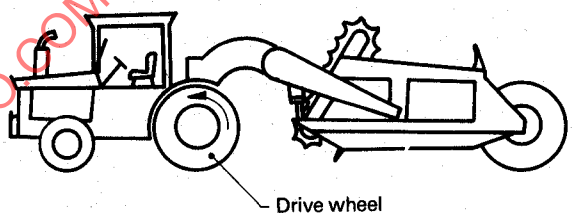
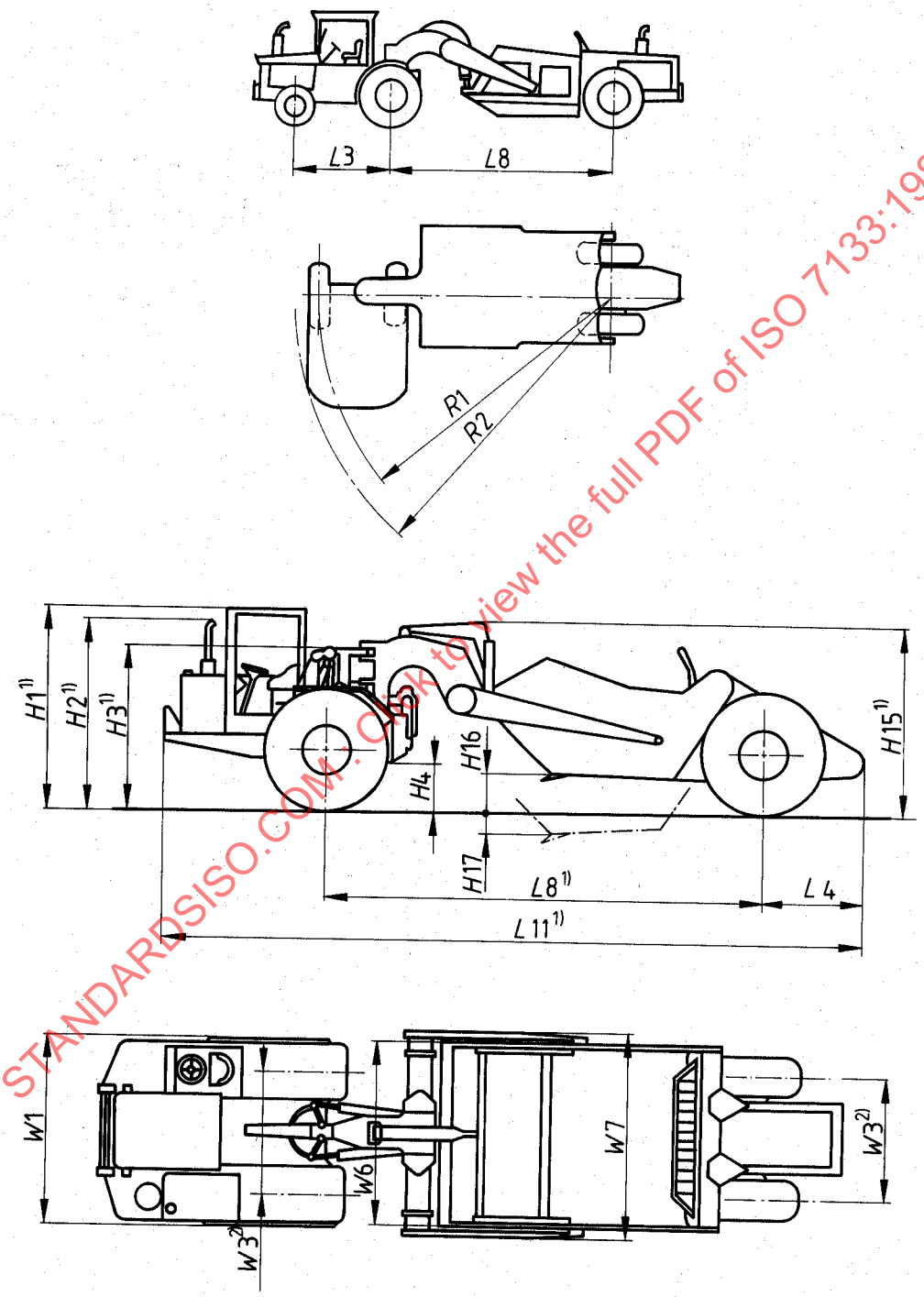


Figure 11 — Centre axle drive

5.2 Dimensions (see figure 12)

For definitions of dimensions, see ISO 6746/1.

For definitions of dimensions strictly related to tractor-scrapers, see the annex.



1) *H*1, *H*2 and *H*3 are measured when the cutting edge is on the ground reference plane (GRP). Also *H*15, *L*8 and *L*11 are measured when the cutting edge is on the GRP.

2) Wheel tread (*W*3) can be different for front and rear tyres.

Figure 12 — Dimensions of base machine (tractor-scraper)

5.3 Masses

5.3.1 operating mass : The mass of the base machine with empty bowl, equipment specified by the manufacturer, operator (75 kg), full fuel tank and full lubricating, hydraulic and cooling systems.

5.3.2 loaded mass : Sum of the operating mass and the manufacturer's rated payload.

5.3.3 axle distribution : Mass at each axle, machine empty and machine loaded.

5.3.4 shipping mass : The mass of the base machine with empty bowl, without operator, with full lubricating, hydraulic and cooling systems, 10 % of fuel tank capacity and with or without equipment, cab, canopy, ROPS [1] or FOPS [2], as stated by the manufacturer.

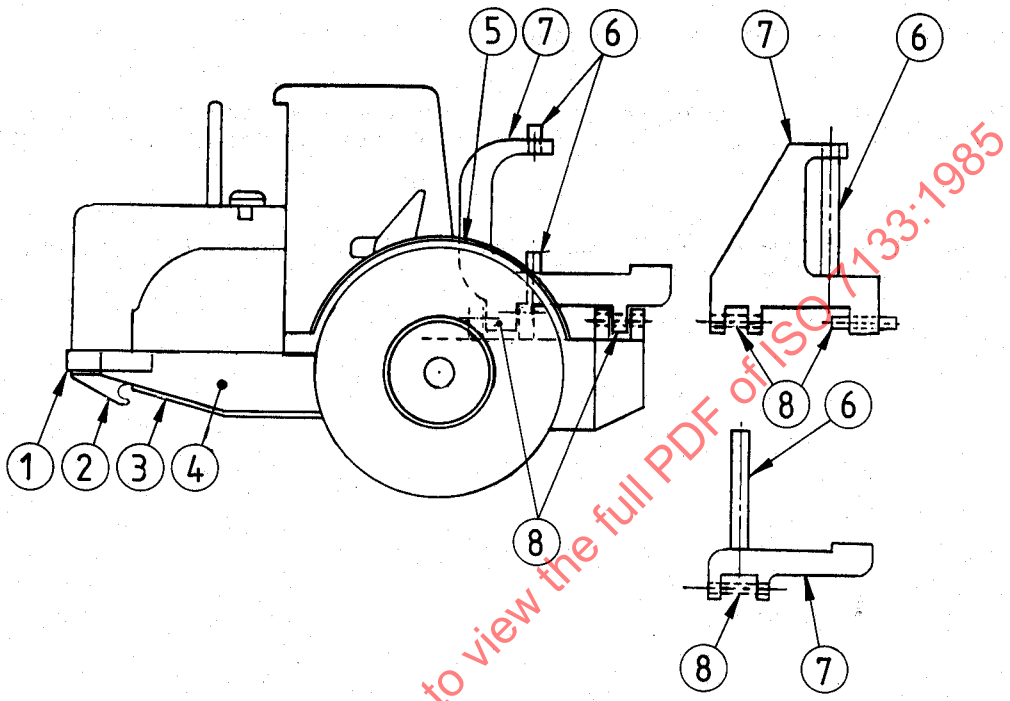
5.3.5 cab, canopy, ROPS or FOPS mass : The mass of cab, canopy, ROPS or FOPS with all their components and mountings required to secure these to the base machine.

1) ROPS — Roll-over protective structure.

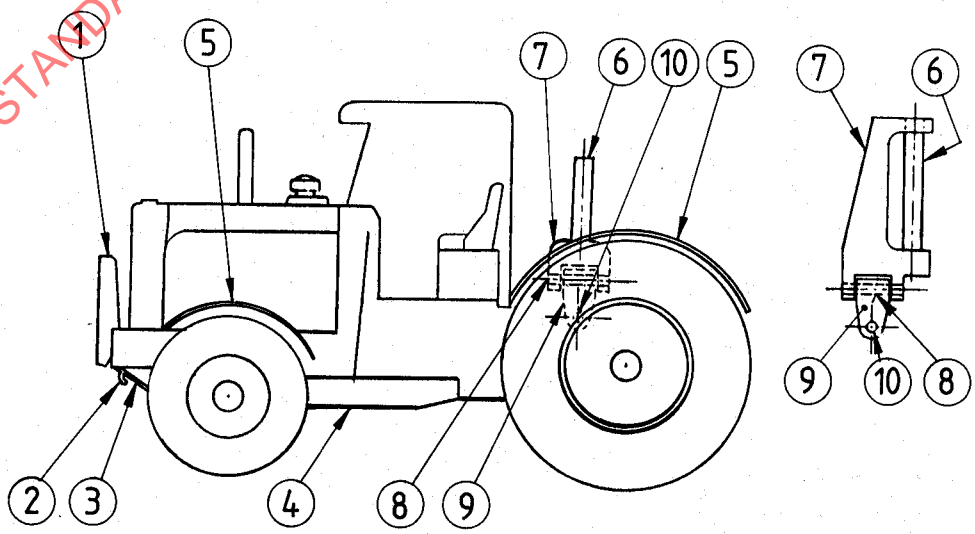
2) FOPS — Falling object protective structure.

5.4 Nomenclature (see diagram numbers)

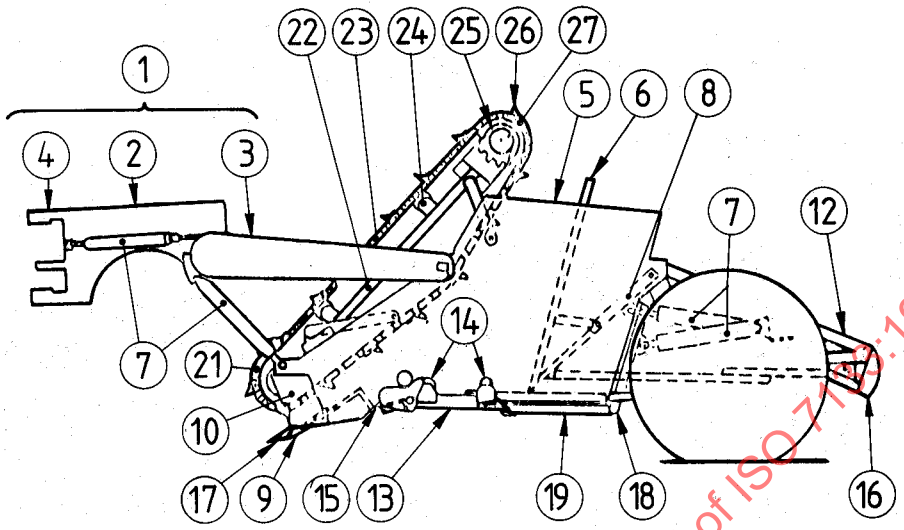
5.4.1 Component nomenclature, tractor



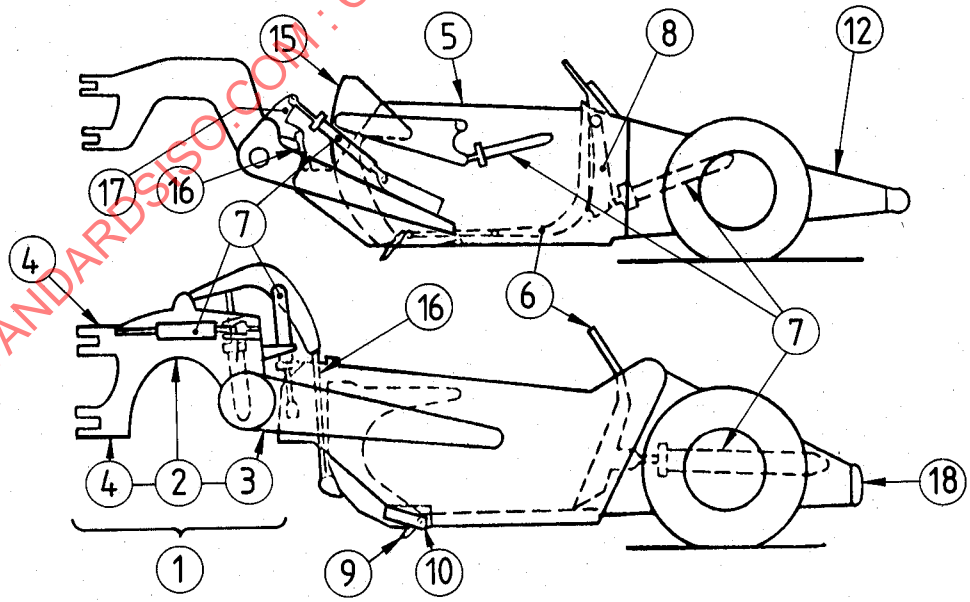
1 Bumper
2 Hook, pull
3 Guard, bottom
4 Frame, main
5 Fender
6 Kingpin, hitch
7 Hitch
8 Pin, oscillating pivot
9 Yoke, hitch
10 Pin, fore and aft pivot



5.4.2 Component nomenclature, scraper



1 Frame, draft
2 Gooseneck
3 Arm, draft
4 Housing, kingpin
5 Bowl
6 Ejector
7 Cylinder
8 Lever, ejector
9 Cutting edge
10 Bit, side
12 Frame, rear
13 Floor, movable
14 Roller, floor or slide
15 Strike-off
16 Bumper
17 Tooth
18 Lever, floor
19 Link, floor
21 Idler, lower
22 Frame, elevator
23 Chain
24 Chain carrier roller
25 Sprocket, chain
26 Flight
27 Drive, elevator



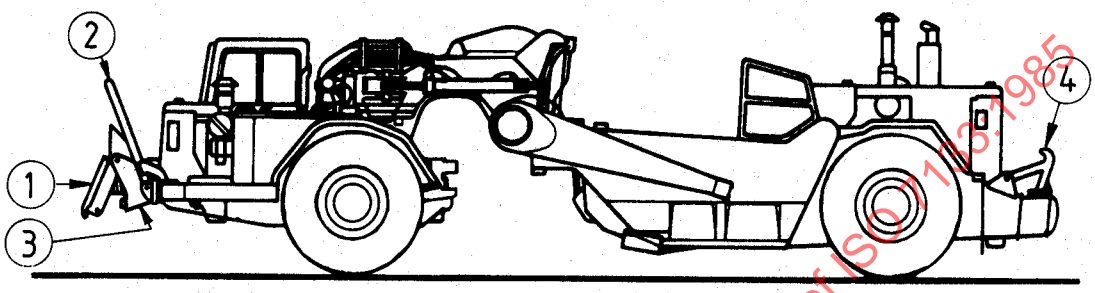
1 Frame, draft
2 Gooseneck
3 Arm, draft
4 Housing, kingpin
5 Bowl
6 Ejector
7 Cylinder
8 Lever, ejector
9 Cutting edge
10 Bit, side
12 Frame, push
15 Apron
16 Link, apron or bowl
17 Lever, apron or bowl
18 Plate, push

6 Attachment

6.1 Definition

push-pull or dual loading : Mechanism which allows one tractor-scraper to assist in loading another tractor-scraper by pushing or pulling through engagement devices which usually include push plates, a hook, and a bail.

6.2 Nomenclature (see diagram numbers)



1 Push plate, front
2 Bail nosepiece
3 Bail bearings
4 Hook